August 12, 2016

REMEDIAL INVESTIGATION / FEASIBILITY STUDY

Progress Report #5 — July 2016

Prepared for

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1.0 INTRODUCTION

This Progress Report (Report) presents a summary of activities completed during the period of July 2016, on behalf of Columbia Falls Aluminum Company, LLC (CFAC), for the Remedial Investigation / Feasibility Study (RI/FS) being performed at the Anaconda Aluminum Co. Columbia Falls Reduction Plant (a/k/a Columbia Falls Aluminum Plant) generally located near Columbia Falls in Flathead County, Montana ("Site"). The RI/FS is being conducted pursuant to the Administrative Settlement Agreement and Order on Consent (AOC) dated November 30, 2015 between CFAC and the United States Environmental Protection Agency (USEPA) (CERCLA Docket No. 08-2016-0002).

This Report provides a description of the actions that have been taken to comply with the AOC during the reporting period and describes work planned for the upcoming reporting period, including an updated project schedule as Appendix A. This report also provides updates regarding the availability of any new, validated sampling data received by CFAC during the reporting period. Lastly, this Report provides an update on any scope revisions and/or project delays encountered and solutions implemented to address any changes.

2.0 WORK COMPLETED

This Section provides a summary of activities completed or ongoing in July 2016.

2.1 SAP Addendum

The Sampling and Analysis Plan (SAP) Addendum was prepared to document the results of Site reconnaissance activities completed in April and early May 2016, to provide a summary of the proposed modifications to the Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP) provided in the Phase I Site Characterization SAP, and to update project information. Roux Associates submitted the SAP Addendum to the USEPA on June 8, 2016. CFAC and Roux Associates received comments from USEPA on the SAP Addendum via email correspondence dated June 30, 2016 and July 13, 2016. Roux Associates, on behalf of CFAC, submitted a response to comment letter and revised SAP Addendum on July28, 2016.

2.2 Phase I Site Characterization Drilling Scope of Work

Drilling of soil borings, installation of monitoring wells, and soil sampling activities associated with the Phase I Site Characterization scope of work continued throughout July. The remainder of this section summarizes the drilling and sampling work completed between July 1, 2016 and July 31, 2016. All drilling locations, sample intervals and selected analyses were in accordance with the RI/FS Work Plan, Phase I Sampling and Analysis Plan, and the SAP Addendum.

2.2.1 Monitoring Well Installation

Thirteen (13) monitoring well locations were drilled by Cascade Drilling and thirteen (13) monitoring wells were installed by Cascade Drilling during July 2016. Table 1 provides a summary of monitoring wells installed as part of the Phase I Site Characterization through July 2016.

Each monitoring well was installed utilizing rotosonic drilling methods to advance casing and collect core samples for geologic logging and laboratory analysis. Sampling associated with the completion of each boring is provided in Table 2. In the process of sonic coring, the holes were temporarily cased with a 6-inch nominal, inner diameter casing. In deep monitoring well locations, where unique geological layers that could serve as potential confining units were encountered beneath the water table during drilling, double-casing was used to hydraulically

isolate monitoring wells screened within different layers, thereby minimizing any potential for cross contamination.

Monitoring well riser and screen were placed down the open hole and a sand filter pack was placed around the screen. The annulus above the filter pack was sealed with a bentonite seal. Monitoring well casings were constructed of 2-inch diameter Schedule 40 polyvinyl chloride (PVC). Monitoring well screens were constructed of 2-inch diameter, machine slot schedule 40 PVC, with screen slot size of 0.020 and were flush-threaded onto the casings. Surface completion of each well consisted of a protective stick-up enclosure, a locking J-plug and an exterior lockable metal cover. Final boring logs for each monitoring well will be included in the Phase I Site Characterization Summary Report.

2.2.2 Soil Borings

In July 2016, Cascade Drilling completed ten (10) soil borings to approximately 12 to 15 feet below land surface utilizing the Geoprobe™ drilling technique. The final boring logs for each soil boring will be included in the Phase I Site Characterization Summary Report. A list of the borings completed and sampling associated with the completion of each boring is provided in Table 2.

2.2.3 Operational Grid Soil Sampling

In July 2016, Cascade Drilling and Roux Associates completed collection of soil samples within the final 16 operational grid decision units using incremental sampling methods (ISM). All ISM soil samples were completed utilizing the Geoprobe™ drilling technique. Surface and shallow subsurface ISM soil samples were collected from each decision unit. A list of the samples collected is provided in Table 2.

Cascade Drilling and Roux Associates also completed resampling of three decisions units as requested by the USEPA via comments provided on Field Modification #4. The three decision units resampled include DU-002, 006, and 008.

2.2.4 Soil Sampling

In July 2016, 108 soil samples were collected by Roux Associates field personnel from soil boring locations, operational area grid ISM sampling locations, and monitoring well drilling locations.

Sample intervals and selected analyses were in accordance with the RI/FS Work Plan, Phase I Sampling and Analysis Plan, and the SAP Addendum. Table 2 provides a summary of the samples collected through July 2016.

2.3 Monitoring Well Development

Twenty-six (26) monitoring wells installed during the Phase I Site Characterization were developed during July 2016. The wells were developed utilizing surge and pump methods. During pumping, Roux Associates field personnel monitored field parameters, including depth to water, flow rate, turbidity, pH, temperature, dissolved oxygen (DO), specific conductivity, and oxidation reduction potential (ORP). Wells were typically pumped until the tubidity reached a value of 10 Nephelometric Turbidity Units (NTUs) or the well was pumped for two hours. Field forms from development will be provided in the Phase I Site Characterization Summary Report.

2.4 Surveying and Monitoring Well Gauging

As requested by the USEPA during the project kickoff meeting held on April 5, 2016 and as described in the SAP Addendum, CFAC agreed to perform surveying and gauging of monitoring wells as the drilling program is ongoing. The purpose of the surveying and gauging activities is to perform a preliminary assessment of groundwater elevations and flow directions throughout the field program.

Sands Surveying was onsite on July 6, 2016 to perform surveying at newly installed monitoring wells and selected existing monitoring wells. Survey data were collected in Montana State Plane and NAD83 Coordinate Systems. Survey data are provided in Table 3.

Roux Associates field personnel collected depth to water on July 6,2016 at new monitoring wells installed as of July 6, 2016 and accessible existing monitoring wells. Gauging data are provided in Table 4. Groundwater elevations collected on July 6, 2016 from water table monitoring wells were utilized to prepare a preliminary groundwater flow map for the Site, which is included as Plate 1.

2.5 Geophysical Surveying

As noted in previous progress reports, Spectrum Geophysics, subcontractor to Roux Associates, was onsite from April 18, 2016 through April 22, 2016 to complete an electrical resistivity (ER) /

induced polarization (IP) geophysical survey. The scope of work for the geophysical survey was described Geophysical Work Plan prepared by Spectrum Geophysics and dated March 23, 2016 and was also described in the SAP Addendum. A summary report was prepared by Spectrum Geophysics and was submitted by Roux Associates to the USEPA on July 24, 2016.

Shari Johnson Engineering was onsite on July 25 and 26, 2016 to complete a ground penetrating radar (GPR) survey as described in the SAP Addendum. Ten (10) GPR transects were completed across the various landfills including the West Landfill, Wet Scrubber Sludge Pond, Sanitary Landfill, Center Landfill and East Landfill. The GPR survey data will be provided in the Phase I Site Characterization Summary Report.

2.6 Field Modifications

One field modification was submitted to USEPA in July 2016 summarizing changes to the SAP and SAP Addendum. Prior to implementation, the field modification was discussed with and verbally approved by the USEPA. The field modification included the following information:

1. Modification #5 (July 21, 2016) – An additional Water Table Monitoring Well, CMFW-056b, was added to the Scope of Work and installed adjacent to Deep Monitoring Well CFMW-056a and Existing Monitoring Well CFMW-056.

In July 2016, USEPA also provided comments via e-mail on Field Modifications #1 through #4 that were previously submitted to USEPA in June 2016. Roux Associates revised the four field modifications based on USEPA comments, and resubmitted the modifications as listed below:

- Revised Field Modification #1 on July 21, 2016;
- Revised Field Modification #2 on July 22, 2016;
- Revised Field Modification #3 on July 21, 2016; and
- Revised Field Modification #4 on July 21, 2016.

Approval of the five field modifications by the USEPA is pending.

2.7 Weekly Reporting and Project Conference Calls

Roux Associates submitted a weekly report to the USEPA for each week in July 2016. The weekly reports include a summary of work completed for the prior week, work upcoming for the next week, health and safety, and any additional notable items.

A conference call was also held with the project team on July 18, 2016. Representatives from USEPA, MDEQ, CFAC, Roux Associates, and CDM Smith were present for the call. During the call, topics discussed included work progress, schedule and field modifications.

3.0 WORK PLANNED FOR NEXT REPORTING PERIOD

This section summarizes the work planned for August 2016.

3.1 Ongoing Phase I Site Characterization Drilling and Soil Sampling Scope of Work

Drilling of soil borings, installation of monitoring wells, and soil sampling activities associated with the Phase I Site Characterization scope of work will continue in August 2016. The drilling and sampling work will continue in accordance with procedures described in the RI/FS Work Plan, Phase I SAP, the SAP Addendum, and any subsequent field modification authorizations. The drilling work will continue to be completed by Cascade Drilling with the support of Roux Associates field personnel. Future progress reports will discuss progress of the drilling scope of work, including a review of locations completed, a summary of samples collected, schedule, and any deviations from the Phase I SAP and the SAP Addendum.

3.2 Monitoring Well Surveying and Gauging

During August 2016, Sands Surveying will be onsite to collect horizontal and vertical survey coordinates of the new monitoring wells installed after July 6, 2016. In accordance with the SAP Addendum, Roux Associates personnel will measure groundwater elevations at new and existing monitoring wells within the Site. An updated, preliminary contour map will be provided with the August Progress Report.

3.3 Monitoring Well Development

During August 2016, Cascade Drilling will continue developing newly-constructed monitoring wells. Cascade will also complete the removal of old equipment in existing monitoring wells and complete redevelopment at each well. Field data collected during monitoring well development will continue to be recorded on field datasheets and will be provided in the Phase I Site Characterization Summary Report.

3.4 Test Pitting

Test pitting activities will be completed at the North and South Asbestos landfills to confirm the presence, or lack thereof, of asbestos materials in each landfill. The test pitting will be performed by Cascade Drilling under the oversight of Roux Associates personnel. Hydrometrics will provide an OSHA certified asbestos inspector to be present during the test pitting. The inspector will provide determination of the asbestos materials, where present.

4.0 DATABASE UPDATES

Validation of laboratory data from the Phase I Site Characterization is being performed by Laboratory Data Consultants (LDC) as a subcontractor to Roux Associates. In July 2016, LDC provided eight sets of validated soil analytical data to Roux Associates. The eight sets of data were uploaded to the CFAC RI/FS database in July 2016 by Roux Associates. Validated laboratory data will continue to be imported into the project database and managed in accordance with the data management procedures outlined in Section 7.10 of the QAPP. Future progress reports will discuss updates to the project database.

5.0 SCOPE/SCHEDULE REVISIONS

The schedule was updated to reflect the progress as a result of the activities completed in July 2016. No changes to the overall schedule are expected at this time. The current Phase I Site Characterization schedule is attached to this Progress Report.

On behalf of CFAC, Roux Associates will continue to pursue the overall objectives described in the AOC and the RI/FS Work Plan. Roux Associates will continue to inform the USEPA of completed and upcoming activities pursuant to the requirements of the AOC in future progress reports.

Respectfully submitted,

ROUX ASSOCIATES, INC.

Michael Ritorto
Senior Hydrogeologist /
RI Project Manager

Andrew Baris
Vice President /
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RI/FS Project Manager

Table 1. Monitoring Wells Installed Through July 2016
Phase I Site Characterization, Columbia Falls Aluminum Company, Montana

Well Type	Well Location ID	Date Started	Date Completed	Boring Depth (ft)	Well Depth (ft)	Well Screen Top (ft-bls)	Well Screen Bottom (ft-bls)
Water Table Monitoring Well	CFMW-002	6/13/2016	6/14/2016	80	80	70	80
Water Table Monitoring Well	CFMW-003	6/2/2016	6/2/2016	54	54	44	54
Deep Monitoring Well	CFMW-003a	5/31/2016	6/3/2016	245.5	200	190	200
Deep Monitoring Well	CFMW-008a	6/13/2016	6/17/2016	300	98	88	98
Water Table Monitoring Well	CFMW-010	5/18/2016	5/20/2016	86	86	76	86
Water Table Monitoring Well	CFMW-011	6/28/2016	6/29/2016	50	50	40	50
Deep Monitoring Well	CFMW-011a	6/25/2016	6/29/2016	300	166	156	166
Deep Monitoring Well	CFMW-012a	5/20/2016	5/24/2016	254	210	200	210
Water Table Monitoring Well	CFMW-016	6/23/2016	6/25/2016	95	95	85	95
Deep Monitoring Well	CFMW-016a	6/21/2016	6/24/2016	300	126	121	126
Water Table Monitoring Well	CFMW-018	5/19/2016	5/28/2016	125	122	112	122
Deep Monitoring Well	CFMW-019a	5/25/2016	5/27/2016	300	220	210	220
Water Table Monitoring Well	CFMW-022	6/2/2016	6/3/2016	85	80	70	80
Deep Monitoring Well	CFMW-023a	6/17/2016	6/21/2016	196	NI	NI	NI
Deep Monitoring Well	CFMW-025a	7/13/2016	7/15/2016	300	95	85	95
Water Table Monitoring Well	CFMW-026	6/14/2016	6/15/2016	50	45	35	45
Water Table Monitoring Well	CFMW-027	6/30/2016	7/1/2016	45	45	35	45
Water Table Monitoring Well	CFMW-028	7/11/2016	7/11/2016	60	60	50	60
Deep Monitoring Well	CFMW-028a	6/30/2016	7/12/2016	300	120	110	120
Water Table Monitoring Well	CFMW-029	5/18/2016	5/19/2016	76	76	66	76
Water Table Monitoring Well	CFMW-032						
Deep Monitoring Well	CFMW-032a						
Water Table Monitoring Well	CFMW-033	7/1/2016	7/2/2016	60	60	50	60
Water Table Monitoring Well	CFMW-034	5/31/2016	6/1/2016	60	60	50	60
Water Table Monitoring Well	CFMW-035	6/1/2016	6/2/2016	70	70	60	70
Water Table Monitoring Well	CFMW-037	6/24/2016	6/25/2016	100	100	90	100
Water Table Monitoring Well	CFMW-038	6/25/2016	6/27/2016	105	105	95	105
Water Table Monitoring Well	CFMW-040	6/28/2016	6/29/2016	90	90	80	90
Water Table Monitoring Well	CFMW-042	6/16/2016	6/18/2016	60	60	50	60
Water Table Monitoring Well	CFMW-043	6/15/2016	6/16/2016	60	60	50	60
Deep Monitoring Well	CFMW-044a	7/20/2016	7/22/2016	300	110	100	110
Water Table Monitoring Well	CFMW-045						
Deep Monitoring Well	CFMW-045a						
Water Table Monitoring Well	CFMW-047	6/21/2016	6/22/2016	120	120	110	120
Deep Monitoring Well	CFMW-049a						
Water Table Monitoring Well	CFMW-050	6/22/2016	6/24/2016	120	120	110	120
Deep Monitoring Well	CFMW-053a						
Water Table Monitoring Well	CFMW-054	6/20/2016	6/21/2016	85	85	75	85
Deep Monitoring Well	CFMW-056a	7/15/2016	7/19/2016	294	135	125	135
Water Table Monitoring Well	CFMW-056b	7/19/2016	7/19/2016	50	50	40	50
Deep Monitoring Well	CFMW-057a	7/27/2016	7/30/2016	300	138	128	138
Water Table Monitoring Well	CFMW-059	7/26/2016	7/27/2016	90	90	80	90
Deep Monitoring Well	CFMW-059a	7/22/2016	7/26/2016	300	168	158	168
Water Table Monitoring Well	CFMW-061	7/12/2016	7/13/2016	25	23	13	23
Water Table Monitoring Well	CFMW-064	7/11/2016	7/11/2016	30	30	20	30

Note

1. Monitoring well CFMW-023a was not installed as indicated in Field Modification #2

Table 2. Soil Samples Collected Through July 2016
CFAC Phase I Site Characterization, Columbia Falls Aluminum Company, Montana

Location ID	Date Sampled	Surface (0-0.5 ft bls)	Shallow (0.5-2 ft bls)	Vadose (10-12 ft bls)	Below Water Table	Surface (0-0.5 ft bls) Lead Only	Notes
CFMW-010	5/18/2016	X	X	X		X	
CFMW-029	5/18/2016	X	X	X			
CFSB-120	5/18/2016	X	X	X			
CFSB-121	5/18/2016	X	X	X			
CFSB-125	5/18/2016	X	X	X			
CFSB-126	5/18/2016	X	X	X			
CFSB-127	5/18/2016	X	X	X			
CFMW-018	5/19/2016	X	X	X			
CFSB-011	5/19/2016	X	X	X			
CFSB-013	5/19/2016	X	X	X			
CFSB-122	5/19/2016	X	X	X			
CFSB-123	5/19/2016	X	X	X			
CFSB-124	5/19/2016	X	X	X			
CFMW-012a	5/20/2016	X	X	X	X	X	
CFSB-040	5/20/2016	X	X	X			
CFSB-042	5/20/2016	X	X	X			
CFSB-044	5/20/2016	X	X	X			
CFSB-046	5/20/2016	X	X	X			
CFSB-048	5/20/2016	X	X	X			
CFSB-052	5/20/2016		X	X			No surface sample collected -concrete surface from 0-0.5 ft bls
CFSB-010	5/21/2016		X	X			No surface sample collected -asphalt surface from 0-0.5 ft bls
CFSB-038	5/21/2016	X	X	X			
CFSB-045	5/21/2016	X	X	X			
CFSB-050	5/21/2016	X	X	X			
CFSB-051	5/21/2016	X	X	X			
CFSB-006	5/23/2016	X	X	X			
CFSB-008	5/23/2016	X	X	X			
CFSB-009	5/23/2016	X	X	X			
CFSB-021	5/23/2016	X	X	X			
CFSB-022	5/23/2016	X	X	X			
CFSB-029	5/23/2016	X	X	X			
CFSB-033	5/23/2016	X	X	X			
CFSB-094	5/24/2016	X	X	X			
CFSB-095	5/24/2016	X	X	X			
CFSB-097	5/24/2016	X	X	X			
CFSB-098	5/24/2016	X	X	X			
CFSB-099	5/24/2016	X	X	X			
CFSB-100	5/24/2016	X	X	X			
CFSB-128	5/24/2016	X	X	X			
CFSB-129	5/24/2016	X	X	X			
CFMW-019a	5/25/2016	X	X	X			Below water table sample not collected due to no recovery in sample interval

Table 2. Soil Samples Collected Through July 2016
CFAC Phase I Site Characterization, Columbia Falls Aluminum Company, Montana

Location ID	Date Sampled	Surface (0-0.5 ft bls)	Shallow (0.5-2 ft bls)	Vadose (10-12 ft bls)	Below Water Table	Surface (0-0.5 ft bls) Lead Only	Notes
CFSB-001	5/25/2016	X	X	X			
CFSB-002	5/25/2016	X	X	X			
CFSB-003	5/25/2016	X	X	X			
CFSB-004	5/25/2016	X	X	X			
CFSB-005	5/25/2016	X	X	X			
CFSB-007	5/25/2016	X	X	X			
CFSB-086	5/26/2016	X	X	X			
CFSB-087	5/26/2016	X	X	X			
CFSB-088	5/26/2016	X	X	X			
CFSB-092	5/26/2016	X	X	X			
CFSB-060	5/27/2016	X	X	X			
CFSB-066	5/27/2016	X	X	X			
CFSB-068	5/27/2016		X	X			No surface sample collected -asphalt surface from 0-0.5 ft bls
CFSB-071	5/27/2016	X	X	X			
CFSB-084	5/27/2016	X	X	X			
CFSB-012	5/28/2016		X	X			No surface sample collected -asphalt surface from 0-0.5 ft bls
CFSB-049	5/28/2016		X	X			No surface sample collected -asphalt surface from 0-0.5 ft bls
CFSB-054	5/28/2016	X	X	X			
CFSB-055	5/28/2016	X	X	X			
CFSB-057	5/28/2016	X	X	X			
CFSB-059	5/28/2016	X	X	X			
CFMW-003a	5/31/2016	X	X	X			
CFMW-034	5/31/2016	X	X	X			
CFSB-034	5/31/2016	X	X	X			
CFSB-035	5/31/2016	X	X	X			
CFSB-036	5/31/2016	X	X	X			
CFSB-037	5/31/2016	X	X	X			
CFSB-053	5/31/2016		X	X			No surface sample collected -asphalt surface from 0-0.5 ft bls
CFMW-035	6/1/2016	X	X	X			
CFSB-073	6/1/2016	X	X	X			
CFSB-074	6/1/2016	X	X	X			
CFSB-075	6/1/2016	X	X	X			
CFSB-079	6/1/2016	X	X	X			
CFSB-080	6/1/2016	X	X	X			
CFSB-082	6/1/2016	X	X	X			
CFMW-003a	6/2/2016				X		Below Water Table collected 23-28 ft bls
CFMW-022	6/2/2016	X	X	X		X	
CFSB-014	6/2/2016	X	X	X			
CFSB-016	6/2/2016	X	X	X			
CFSB-062	6/2/2016	X	X	X			
CFSB-065	6/2/2016	X	X	X			

Table 2. Soil Samples Collected Through July 2016
CFAC Phase I Site Characterization, Columbia Falls Aluminum Company, Montana

Location ID	Date Sampled	Surface (0-0.5 ft bls)	Shallow (0.5-2 ft bls)	Vadose (10-12 ft bls)	Below Water Table	Surface (0-0.5 ft bls) Lead Only	Notes
CFSB-064	6/3/2016	X	X	X			
CFSB-132	6/3/2016	X	X	X			
CFSB-133	6/3/2016	X	X	X			
CFSB-019	6/4/2016	X	X				
CFMW-002	6/13/2016	X	X	X			
CFMW-008a	6/13/2016	X	X	X	X	X	Below Water Table collected 88-93 ft bls
CFSB-019	6/13/2016			X			
CFSB-025	6/13/2016	X	X	X			
CFSB-026	6/13/2016	X	X	X			
CFSB-027	6/13/2016	X	X	X			
CFSB-030	6/13/2016	X	X	X			
CFISS-001	6/14/2016	X	X				
CFISS-002	6/14/2016	X	X				
CFMW-008a	6/14/2016						
CFMW-026	6/14/2016	X	X	X		X	
CFISS-003	6/15/2016	X	X				
CFISS-004	6/15/2016	X	X			X	
CFMW-043	6/15/2016	X	X	X			
CFISS-005	6/16/2016	X	X			X	
CFMW-042	6/16/2016	X	X	X			
CFISS-006	6/17/2016	X	X				
CFISS-007	6/17/2016	X	X				
CFMW-023a	6/17/2016	X	X	X		X	
CFSB-130	6/17/2016		X	X			Inside Main Plant. No surface sample collected - concrete from 0-0.5
CFSB-131	6/17/2016		X	X			Inside Main Plant. No surface sample collected - concrete from 0-0.5. Two additional samples collected as opportunity samples due to visual contamination. 18-20 as most impacted interval. 22-23 as below impacts.
CFISS-008	6/18/2016	X	X				
CFISS-015	6/18/2016	X	X				
CFMW-023a	6/18/2016				X		Below Water Table collected 123-128 ft bls
CFISS-013	6/20/2016	X	X			X	
CFISS-014	6/20/2016	X	X				
CFMW-054	6/20/2016	X	X	X			
CFISS-011	6/21/2016	X	X			X	
CFISS-012	6/21/2016	X	X				
CFMW-016a	6/21/2016	X	X	X	X	X	Below Water Table collected 79-84 ft bls
CFMW-047	6/21/2016					X	
CFMW-047	6/21/2016	X	X	X			
CFISS-009	6/22/2016	X	X				
CFISS-010	6/22/2016	X	X				
CFMW-050	6/22/2016	X	X	X		X	

Table 2. Soil Samples Collected Through July 2016
CFAC Phase I Site Characterization, Columbia Falls Aluminum Company, Montana

Location ID	Date Sampled	Surface (0-0.5 ft bls)	Shallow (0.5-2 ft bls)	Vadose (10-12 ft bls)	Below Water Table	Surface (0-0.5 ft bls) Lead Only	Notes
CFISS-016	6/23/2016	X	X				
CFISS-017	6/23/2016	X	X				
CFISS-018	6/24/2016	X	X				
CFISS-019	6/24/2016	X	X				
CFMW-037	6/24/2016	X	X	X		X	
CFISS-020	6/25/2016	X	X				
CFISS-021	6/25/2016	X	X			X	
CFMW-038	6/25/2016	X	X	X		X	
CFMW-038	6/25/2016						
CFMW-11a	6/25/2016	X	X	X	X	X	Below Water Table collected 31-36 ft bls
CFISS-022	6/27/2016	X	X				
CFISS-023	6/27/2016	X	X				
CFISS-029	6/27/2016	X	X				
CFISS-016	6/28/2016		X				
CFMW-040	6/28/2016	X	X	X		X	
CFMW-040	6/28/2016						
CFISS-024	6/29/2016	X	X				
CFISS-025	6/30/2016	X	X				
CFISS-026	6/30/2016	X	X				
CFMW-027	6/30/2016	X	X	X		X	
CFMW-028a	6/30/2016	X	X	X	X	X	Below Water Table collected 48-53 ft bls. One additional sample collected from CMFW-28a from a zone of potential impact at 4.5-6' bgs
CFISS-027	7/1/2016	X	X				
CFISS-028	7/1/2016	X	X			X	
CFMW-033	7/1/2016	X	X	X		X	
CFISS-034	7/11/2016	X	X				
CFISS-035	7/11/2016	X	X				
CFMW-064	7/11/2016	X	X	X		X	
CFISS-032	7/12/2016	X	X			X	
CFISS-033	7/12/2016	X	X				
CFMW-061	7/12/2016	X	X	X		X	
CFSB-114	7/12/2016	X	X	X			
CFSB-119	7/12/2016	X	X	X			
CFISS-031	7/13/2016	X	X				
CFISS-040	7/13/2016	X	X			X	
CFMW-025a	7/13/2016	X	X	X	X	X	Below water table collected from 35-40.
CFSB-102	7/13/2016	X	X	X			
CFSB-104	7/13/2016	X	X	X			
CFSB-109	7/13/2016	X	X	X			
CFSB-110	7/13/2016	X	X	X			
CFISS-038	7/14/2016	X	X				

Table 2. Soil Samples Collected Through July 2016
CFAC Phase I Site Characterization, Columbia Falls Aluminum Company, Montana

Location ID	Date Sampled	Surface (0-0.5 ft bls)	Shallow (0.5-2 ft bls)	Vadose (10-12 ft bls)	Below Water Table	Surface (0-0.5 ft bls) Lead Only	Notes
CFISS-039	7/14/2016	X	X				
CFISS-036	7/15/2016	X	X				
CFISS-037	7/15/2016	X	X			X	
CFMW-056a	7/15/2016	X	X	X	X	X	Below water table collected from 37-42.
CFISS-041	7/16/2016	X	X				
CFISS-042	7/18/2016	X	X				
CFISS-043	7/18/2016	X	X				
CFSB-028	7/18/2016	X	X	X			
CFISS-002	7/19/2016	X	X				
CFISS-030	7/20/2016	X	X				
CFMW-044a	7/20/2016	X	X	X	X	X	Below water table collected from 49-54.
CFSB-101	7/21/2016	X	X	X			
CFSB-118	7/21/2016	X	X	X			
CFMW-059a	7/22/2016	X	X	X	X	X	Below water table collected from 79-84.
CFSB-116	7/22/2016	X	X	X			
CFISS-006	7/25/2016	X	X				
CFISS-008	7/26/2016	X	X				
CFMW-057a	7/27/2016	X	X	X	X		Below water table collected from 30-35.

Table 3. Monitoring Well Survey Data - July 6, 2016
Phase I Site Characterization, Columbia Falls Aluminum Company, Montana

Well Location ID	Previous Well ID	Date Surveyed	Surveyor	Northing (Y) (NAD83 MT State Plane)	Easting (X) (NAD83 MT State Plane)	Top of Casing (ft-amsl)	Well Pad/ Ground (ft-amsl)
CFMW-002	--	7/6/2016	Sands	1546021.158	843027.354	3145.58	3142.75
CFMW-003	--	7/6/2016	Sands	1547594.617	841640.301	3144.95	3142.32
CFMW-003a	--	7/6/2016	Sands	1547603.17	841647.493	3145.57	3143.01
CFMW-008a	--	7/6/2016	Sands	1546575.278	844043.577	3196.44	3194.69
CFMW-010	--	7/6/2016	Sands	1546115.479	842986.314	3147.06	3144.69
CFMW-011	--	7/6/2016	Sands	1545989.982	842462.741	3103.41	3100.98
CFMW-011a	--	7/6/2016	Sands	1545990.3	842455.026	3103.65	3100.77
CFMW-012a	--	7/6/2016	Sands	1545978.652	843111.473	3142.76	3140.29
CFMW-016	--	7/6/2016	Sands	1545847.943	843955.534	3166.59	3163.84
CFMW-016a	--	7/6/2016	Sands	1545856.544	843955.402	3167.11	3164.29
CFMW-018	--	7/6/2016	Sands	1545750.745	844586.938	3212.81	3210.04
CFMW-019a	--	7/6/2016	Sands	1545565.436	843291.647	3138.98	3136.51
CFMW-022	--	7/6/2016	Sands	1545314.578	843942.176	3137.32	3134.39
CFMW-026	--	7/6/2016	Sands	1545199.463	841222.779	3104.26	3101.58
CFMW-027	--	7/6/2016	Sands	1545251.431	842166.064	3097.11	3094.38
CFMW-029	--	7/6/2016	Sands	1545108.045	843463.411	3133.04	3130.52
CFMW-033	--	7/6/2016	Sands	1544545.111	842408.017	3110.64	3107.97
CFMW-034	--	7/6/2016	Sands	1544513.493	843342.204	3109.99	3107.45
CFMW-035	--	7/6/2016	Sands	1544499.012	844447.319	3109.92	3107.12
CFMW-037	--	7/6/2016	Sands	1543140.324	844473.946	3113.64	3110.87
CFMW-038	--	7/6/2016	Sands	1543075.138	843981.359	3113.77	3110.88
CFMW-040	--	7/6/2016	Sands	1543076.822	842863.264	3113.72	3111.05
CFMW-042	--	7/6/2016	Sands	1543285.825	842383.655	3110.34	3107.52
CFMW-043	--	7/6/2016	Sands	1544078.364	842157.85	3109.91	3106.97
CFMW-047	--	7/6/2016	Sands	1542470.126	844332.708	3117.18	3114.48
CFMW-050	--	7/6/2016	Sands	1542299.178	844928.802	3123.12	3120.24
CFMW-054	--	7/6/2016	Sands	1542966.021	841003.141	3112.67	3109.92
CFMW-008	TW9	7/6/2016	Sands	1546564.756	844032.614	3192.97	3191.769
CFMW-012	W11-TW17	7/6/2016	Sands	1545999.738	843116.466	3142.48	3140.472
CFMW-025b	W10-TW22	7/6/2016	Sands	1545233.747	840916.756	3103.66	3101.599

Table 4. Gauging Data Collected on July 5 and 6, 2016, Phase I Site Characterization, Columbia Falls, Montana

Well Type	Well Location ID	Previous Well ID	Northing (Y) (NAD83 MT State Plane)	Easting (X) (NAD83 MT State Plane)	Top of Casing (ft-amsl)	Well Pad/ Ground (ft-amsl)	Well Depth (ft-bls)	Well Screen Top (ft-bls)	Well Screen Top (ft-amsl)	Well Screen Bottom (ft-bls)	Well Screen Bottom (ft-amsl)	July 5/6, 2016 DTW (ft-btoc)	July 5/6, 2016 DTB (ft-btoc)	July 5/6, 2016 Groundwater Elevation (ft-amsl)
Water Table Monitoring Well	CFMW-002	--	1546021.158	843027.354	3145.58	3142.75	80	70	3072.75	80	3062.75	69.9	83.75	3075.68
Water Table Monitoring Well	CFMW-003	--	1547594.617	841640.301	3144.95	3142.32	54	44	3098.32	54	3088.32	21.28	48.04	3123.67
Deep Monitoring Well	CFMW-003a	--	1547603.17	841647.493	3145.57	3143.01	200	190	2953.01	200	2943.01	149.18	NM	2996.39
Deep Monitoring Well	CFMW-008a	--	1546575.278	844043.577	3196.44	3194.69	98	88	3106.69	98	3096.69	26.05	NM	3170.39
Water Table Monitoring Well	CFMW-010	--	1546115.479	842986.314	3147.06	3144.69	86	76	3068.69	86	3058.69	70.46	89.1	3076.6
Water Table Monitoring Well	CFMW-011	--	1545989.982	842462.741	3103.41	3100.98	50	40	3060.98	50	3050.98	29.49	53.6	3073.92
Deep Monitoring Well	CFMW-011a	--	1545990.3	842455.026	3103.65	3100.77	166	156	2944.77	166	2934.77	97.63	170.55	3006.02
Deep Monitoring Well	CFMW-012a	--	1545978.652	843111.473	3142.76	3140.29	210	200	2940.29	210	2930.29	142.51	NM	3000.25
Water Table Monitoring Well	CFMW-016	--	1545847.943	843955.534	3166.59	3163.84	95	85	3078.84	95	3068.84	78.48	99.52	3088.11
Deep Monitoring Well	CFMW-016a	--	1545856.544	843955.402	3167.11	3164.29	126	121	3043.29	126	3038.29	79.03	130.45	3088.08
Water Table Monitoring Well	CFMW-018	--	1545750.745	844586.938	3212.81	3210.04	122	112	3098.04	122	3088.04	126.1	129	3086.71
Deep Monitoring Well	CFMW-019a	--	1545565.436	843291.647	3138.98	3136.51	220	210	2926.51	220	2916.51	138.75	NM	3000.23
Water Table Monitoring Well	CFMW-022	--	1545314.578	843942.176	3137.32	3134.39	80	70	3064.39	80	3054.39	63.32	84.8	3074
Water Table Monitoring Well	CFMW-026	--	1545199.463	841222.779	3104.26	3101.58	45	35	3066.58	45	3056.58	33.43	48.36	3070.83
Water Table Monitoring Well	CFMW-027	--	1545251.431	842166.064	3097.11	3094.38	45	35	3059.38	45	3049.38	25.55	49.03	3071.56
Water Table Monitoring Well	CFMW-029	--	1545108.045	843463.411	3133.04	3130.52	76	66	3064.52	76	3054.52	60.72	79.42	3072.32
Water Table Monitoring Well	CFMW-033	--	1544545.111	842408.017	3110.64	3107.97	60	50	3057.97	60	3047.97	40.76	64.67	3069.88
Water Table Monitoring Well	CFMW-034	--	1544513.493	843342.204	3109.99	3107.45	60	50	3057.45	60	3047.45	40.25	63.49	3069.74
Water Table Monitoring Well	CFMW-035	--	1544499.012	844447.319	3109.92	3107.12	70	60	3047.12	70	3037.12	38.86	71.5	3071.06
Water Table Monitoring Well	CFMW-037	--	1543140.324	844473.946	3113.64	3110.87	100	90	3020.87	100	3010.87	76.51	105	3037.13
Water Table Monitoring Well	CFMW-038	--	1543075.138	843981.359	3113.77	3110.88	105	95	3015.88	105	3005.88	85.77	109	3028
Water Table Monitoring Well	CFMW-040	--	1543076.822	842863.264	3113.72	3111.05	90	80	3031.05	90	3021.05	71.73	94	3041.99
Water Table Monitoring Well	CFMW-042	--	1543285.825	842383.655	3110.34	3107.52	60	50	3057.52	60	3047.52	48.38	64.3	3061.96
Water Table Monitoring Well	CFMW-043	--	1544078.364	842157.85	3109.91	3106.97	60	50	3056.97	60	3046.97	43.68	63	3066.23
Water Table Monitoring Well	CFMW-047	--	1542470.126	844332.708	3117.18	3114.48	120	110	3004.48	120	2994.48	97.6	125.1	3019.58
Water Table Monitoring Well	CFMW-050	--	1542299.178	844928.802	3123.12	3120.24	120	110	3010.24	120	3000.24	101.54	124.3	3021.58
Water Table Monitoring Well	CFMW-054	--	1542966.021	841003.141	3112.67	3109.92	85	75	3034.92	85	3024.92	71.78	89.6	3040.89
Existing Monitoring Well	CFMW-001	W2-CFMW1	1549228.859	842170.366	3173.783	3170.907	152.5	132.5	3038.407	152.5	3018.407	97.33	155.3	3076.453
Existing Monitoring Well	CFMW-007	TW3	1546426.597	843029.76	3149.199	3147.958	160	91	3056.958	102	3045.958	64.31	172.8	3084.889
Existing Monitoring Well	CFMW-008	TW9	1546564.756	844032.614	3192.97	3191.769	38.5	NA	NA	Open Bottom	NA	22.58	198	3170.39
Existing Monitoring Well	CFMW-012	W11-TW17	1545999.738	843116.466	3142.48	3140.472	90	70	3070.472	85	3055.472	66.84	89.25	3075.64
Existing Monitoring Well	CFMW-014	W3-TW20	1545822.378	842858.322	3142.31	3139.968	92	72	3067.968	87	3052.968	68.56	100.3	3073.75
Existing Monitoring Well	CFMW-015	W4-TW21	1545790.29	843070.037	3140.65	3138.933	94	72	3066.933	87	3051.933	66.8	86.2	3073.85
Existing Monitoring Well	CFMW-017	TW14	1545913.137	844140.867	3210.569	3207.893	141	137	3070.893	141	3066.893	123.6	153.8	3086.969
Existing Monitoring Well	CFMW-019	W5-TW15	1545555.121	843277.96	3137.81	3136.232	96	78	3058.232	88	3048.232	65.54	104.38	3072.27
Existing Monitoring Well	CFMW-020	TW8	1545748.365	844071.614	3168.737	3166.624	130	113	3053.624	118	3048.624	82.2	124.7	3086.537
Existing Monitoring Well	CFMW-021	W6-TW18	1545558.392	843505.246	3138.155	3136.09	90	70	3066.09	85	3051.09	NM	NM	NM
Existing Monitoring Well	CFMW-023	TW10	1545521.21	844694.956	3209.982	3208.638	144.5	137.5	3071.138	143.25	3065.388	118.25	156.54	3091.732
Existing Monitoring Well	CFMW-025	TW23	1545240.341	840912.165	3103.541	3101.16	24.5	9.5	3091.66	24.5	3076.66	26.13	26.8	3077.411
Existing Monitoring Well	CFMW-025b	W10-TW22	1545233.747	840916.756	3103.66	3101.599	60	45	3056.599	60	3041.599	31.45	68.2	3072.21
Existing Monitoring Well	CFMW-031	W0-CFMW2	1544867.601	842797.671	3109.49	3107.82	50	35	3072.82	50	3057.82	39.28	53	3070.21
Existing Monitoring Well	CFMW-036	W1-PW7	1541629.329	843914.6467	3021.6	3030	NA	NA	2968	NA	2960	NM	NM	NM
Existing Monitoring Well	CFMW-044	W8-TW2	1543941.726	841700.388	3108.093	3105.883	53	NA	NA	Open Bottom	NA	42.8	57.5	3065.293
Existing Monitoring Well	CFMW-044b	TW1	1543937.612	841699.554	3107.979	3105.262	>200	NA	NA	Open Bottom	NA	59.38	NM	3048.599
Existing Monitoring Well	CFMW-048	PW3	1542485.18	844497.4031	3106.85	NA	NA	NA	2996.96	NA	2986.96	NM	NM	NM
Existing Monitoring Well	CFMW-049	W7-TW19	1542470.637	844793.481	3122.693	3120.165	113	100	3020.165	111	3009.165	99.29	123.4	3023.403
Existing Monitoring Well	CFMW-051	W9-PW5	1542149.083	845500.0484	3123.25	NA	NA	NA	2985.35	NA	2961.18	NM	NM	NM
Existing Monitoring Well	CFMW-052	PW4	1542121.449	846201.6946	3139.47	NA	NA	NA	2985.25	NA	2964.49	NM	NM	NM
Existing Monitoring Well	CFMW-053	TW16	1542974.491	841601.392	3111.227	3109.649	77	47	3062.649	77	3032.649	49.37	78.8	3061.857
Existing Monitoring Well	CFMW-056	TW11	1544572.964	839789.319	3101.349	3098.851	181.08	NA	NA	Open Bottom	NA	84.19	171.6	3017.159
Existing Monitoring Well	CFMW-057	TW12	1543626.421	837706.038	3094.937	3092.563	185.75	NA	NA	NA	NA	81.21	157.2	3013.727
Existing Monitoring Well	CFMW-062	PW6	1541841.609	843927.2156	3021.6	NA	NA	NA	2959.4	NA	2951.4	NM	NM	NM

Notes

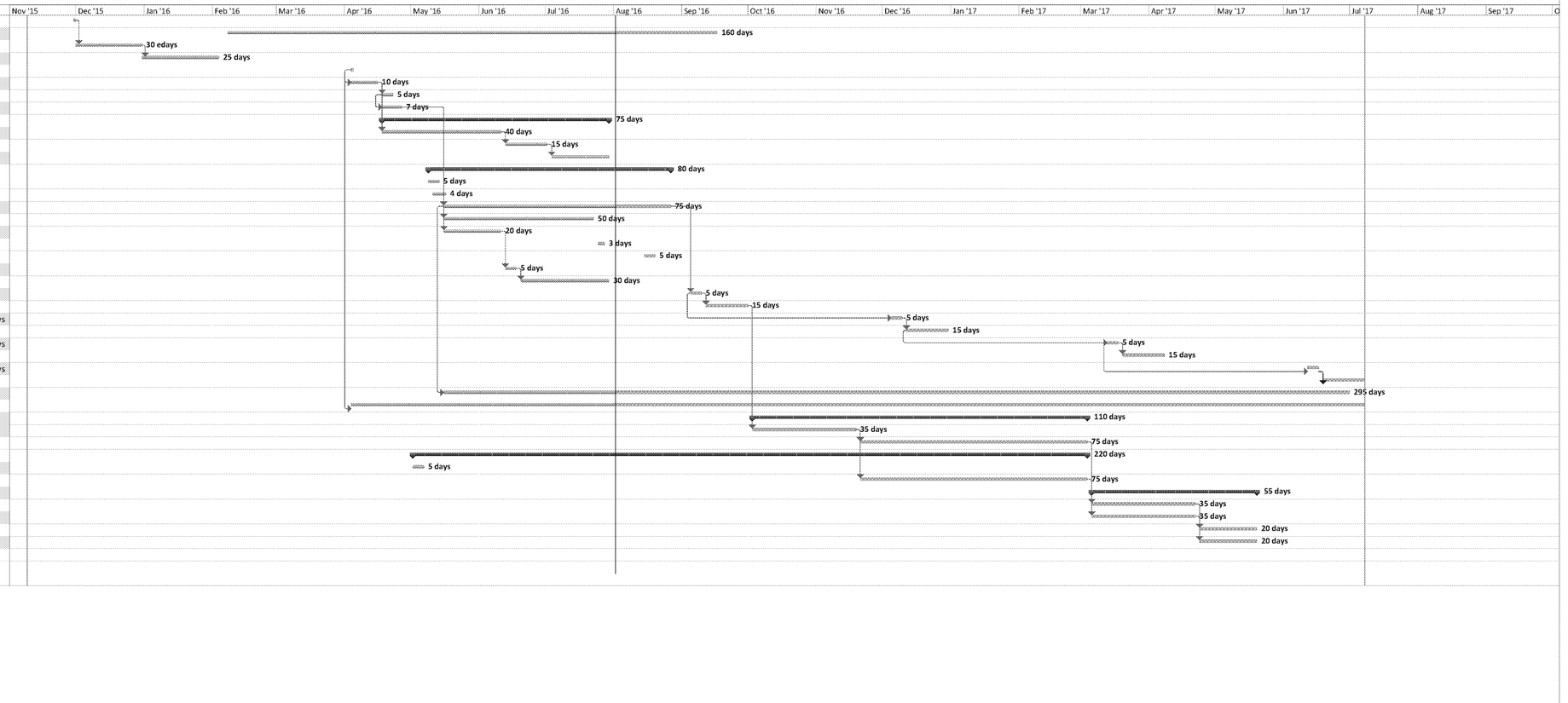
1. NM = Not Measured
2. NA = Information not available
3. Well depths and screened intervals from existing wells taken from USEPA Site Reassessment Report, (Weston, 2014) and Historical Well Logs

APPENDIX A

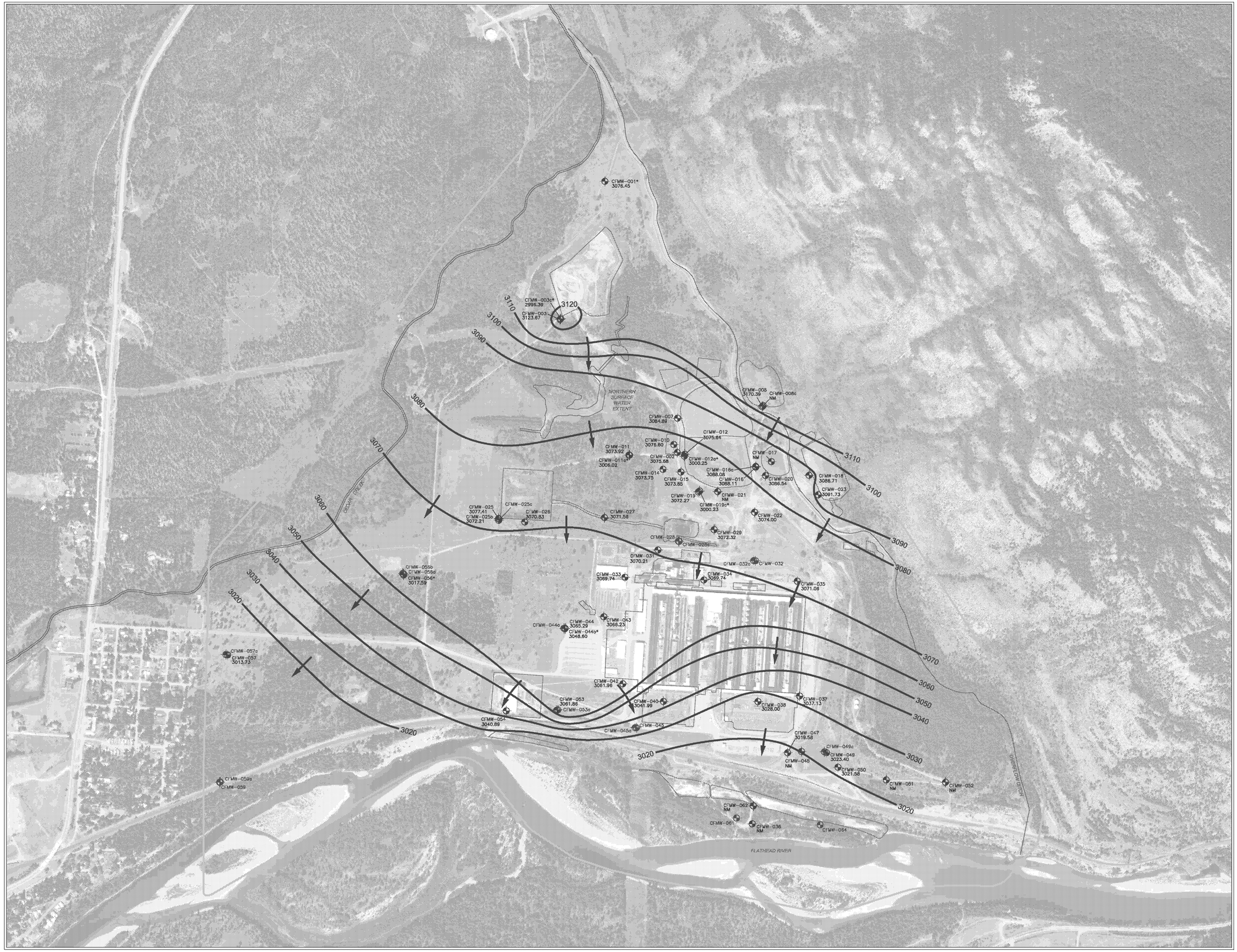
Project Schedule

Project Schedule Updated July 31, 2016

ID	Deliverable	Task Name	Duration	Start	Finish	Company	Predecessors
1		AOC is executed by all parties	1 day	Mon 11/30/15	Mon 11/30/15	EPA/CFAC	
2		Historical Records Review	160 days	Mon 2/8/16	Fri 9/16/16	Roux	
3	X	Draft Health and Safety Plan (HASP)	30 edays	Mon 11/30/15	Wed 12/30/15	Roux	1
4	X	Final Health and Safety Plan (HASP)	25 days	Thu 12/31/15	Wed 2/3/16	Roux	3
5		Site is clear of Snow / Field Work Begins	1 day	Mon 4/4/16	Mon 4/4/16		
6		Pre-Intrusive Task 1 - Site Reconnaisance	10 days	Mon 4/4/16	Fri 4/15/16	Roux	5SS
7		Pre-Intrusive Task 2 - Geophysical Survey	5 days	Mon 4/18/16	Fri 4/22/16	Roux	6
8		Pre-Intrusive Task 3 - Soil Gas Survey	7 days	Mon 4/18/16	Tue 4/26/16	Roux	7SS
9		**SAP Addendum**	**75 days**	**Mon 4/18/16**	**Fri 7/29/16**	**Roux**	
10	X	Draft SAP Addendum	40 days	Mon 4/18/16	Fri 6/10/16	Roux	6
11		EPA Review of Draft SAP Addendum	15 days	Mon 6/13/16	Fri 7/1/16	EPA	10
12	X	Final SAP Addendum	20 days	Mon 7/4/16	Fri 7/29/16	Roux	11
13		**Source Area Investigation**	**80 days**	**Mon 5/9/16**	**Fri 8/26/16**	**Roux/Hydrometrics**	
14		GPR Utility Mark-Outs	5 days	Mon 5/9/16	Fri 5/13/16	Roux	
15		Clearing / Grading for Drill Rig Access	4 days	Wed 5/11/16	Mon 5/16/16	Roux	
16		Sonic Rig 1	75 days	Mon 5/16/16	Fri 8/26/16	Roux	8FS+10 days
17		Sonic Rig 2	50 days	Mon 5/16/16	Fri 7/22/16	Roux	8FS+10 days
18		Geoprobe	20 days	Mon 5/16/16	Fri 6/10/16	Hydrometrics	8FS+10 days
19		Landfill GPR Survey Field Work	3 days	Mon 7/25/16	Wed 7/27/16	Roux	
20		Test Pitting	5 days	Mon 8/15/16	Fri 8/19/16	Roux	
21		Background Area Investigation	5 days	Mon 6/13/16	Fri 6/17/16	Hydrometrics	18
22		Operational Grid Area Investigation	30 days	Mon 6/20/16	Fri 7/29/16	Hydrometrics	21
23		Site-Wide Surface Water Sampling - Event 1	5 days	Mon 9/5/16	Fri 9/9/16	Roux/Hydrometrics	16FS+5 days
24		Site-Wide Groundwater Sampling - Event 1	15 days	Mon 9/12/16	Fri 9/30/16	Roux/Hydrometrics	23
25		Site-Wide Surface Water Sampling - Event 2	5 days	Mon 12/5/16	Fri 12/9/16	Roux/Hydrometrics	23SS+90 edays
26		Site-Wide Groundwater Sampling - Event 2	15 days	Mon 12/12/16	Fri 12/30/16	Roux/Hydrometrics	25
27		Site-Wide Surface Water Sampling - Event 3	5 days	Mon 3/13/17	Fri 3/17/17	Roux/Hydrometrics	26SS+90 edays
28		Site-Wide Groundwater Sampling - Event 3	15 days	Mon 3/20/17	Fri 4/7/17	Roux/Hydrometrics	27
29		Site-Wide Surface Water Sampling - Event 4	5 days	Mon 6/12/17	Fri 6/16/17	Roux/Hydrometrics	27SS+90 edays
30		Site-Wide Groundwater Sampling - Event 4	15 days	Mon 6/19/17	Fri 7/7/17	Roux/Hydrometrics	29
31		Background Hydrology Studies	295 days	Mon 5/16/16	Fri 6/30/17	Roux	16SS
32		Investigation Derived Waste Management/Disposal	330 days	Mon 4/4/16	Fri 7/7/17	Roux	5SS
33		**Draft Phase 1 Data Summary Report**	**110 days**	**Mon 10/3/16**	**Fri 3/3/17**	**Roux**	
34		Data Validation Completion	35 days	Mon 10/3/16	Fri 11/18/16	Data Validator	24
35	X	Draft Phase I Site Characterization Summary Report	75 days	Mon 11/21/16	Fri 3/3/17	Roux	34
36		**SLERA**	**220 days**	**Mon 5/2/16**	**Fri 3/3/17**	**Roux**	
37		Completion of SLERA Field Work	5 days	Mon 5/2/16	Fri 5/6/16	Roux	
38	X	Draft SLERA Report	75 days	Mon 11/21/16	Fri 3/3/17	Roux	34
39		**Final Phase 1 Data Summary Report and SLERA Report**	**55 days**	**Mon 3/6/17**	**Fri 5/19/17**	**Roux**	
40		EPA review of Draft Phase I Data Summary Report	35 days	Mon 3/6/17	Fri 4/21/17	EPA	35
41		EPA review of Draft SLERA Report	35 days	Mon 3/6/17	Fri 4/21/17	EPA	38
42	X	Final Phase I Summary Report	20 days	Mon 4/24/17	Fri 5/19/17	Roux	40
43	X	Final SLERA Report	20 days	Mon 4/24/17	Fri 5/19/17	Roux	41



Scheduled Task Task Progress Complete Summary



LEGEND

- RI/FS SITE BOUNDARY
- SURFACE WATER FEATURE
- SITE FEATURE
- CFMW-035 — LOCATION AND DESIGNATION OF MONITORING WELL INSTALLED AS OF JULY 6, 2016
- CFMW-032 — LOCATION AND DESIGNATION OF MONITORING WELL TO BE COMPLETED
- 3071.06 — GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- NM — NOT MEASURED
- * — NOT USED IN CONTOURING
- 3080 — CONTOUR LINE OF EQUAL GROUNDWATER ELEVATION
- INFERRED GROUNDWATER FLOW DIRECTION

PRELIMINARY

NOTE

1. MAP REFLECTS GWE IN MONITORING WELLS INSTALLED AS OF JULY 6, 2016.
2. MONITORING WELLS INSTALLED DEEP ARE NOT USED IN CONTOURING.

500' 0 500'

Title:

PRELIMINARY CONTOUR MAP WITH MONITORING WELLS INSTALLED AS OF JULY 6, 2016 GAUGING ROUND

Prepared For:

COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: M.R.	Date: 08AUG16	PLATE	
Prepared by: G.M.	Scale: AS SHOWN		1
Project Mgr: M.R.	Project: 2476.0001Y002		
File: 2476.0001Y141.01.DWG			

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